

REMARKS

Favorable reconsideration of the above-identified application is respectfully requested in view of the following remarks.

As a preliminary matter, a restriction requirement was set forth in the Official Action between Species I (Claims 1-22 and 24) and Species II (Claim 23). Applicant hereby elects Species I for prosecution in this application with traverse.

This election of species requirement is traversed at least because it is believed that a search connected to the examination of Claim 23 would be substantially coextensive with the searches already performed, and that even if a further search would be required, that it would not place a substantial burden on the Examiner. Thus, it is requested that this election of species requirement be withdrawn and that Claim 23 be examined along with the other claims.

Claims 1-24 are pending in this application, with Claims 1, 10, 12, 21, 23 and 24 being independent. Claim 23 has been withdrawn, and Claims 3-6, 11 and 14-17 are objected to.

The Examiner is thanked for indicating on page seven of the Official Action that Claims 3-6, 11 and 14-17 define allowable subject matter.

Claims 1, 10, 12, 21, 22 and 24 are rejected under 35 U.S.C. § 102(a) as being anticipated by United States Patent No. 6,088,137, hereinafter *Tomizawa*. Claims 2, 8-10, 12, 13, 19 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tomizawa* in view of U.S. Patent No. 5,309,228, hereinafter *Nakamura*. Claims 7 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tomizawa* in view of U.S. Patent No. 5,075,788, hereinafter *Funda*.

Tomizawa discloses a specified image-area extracting method and device for extracting a face area (skin color) of a person from an image, irrespective of the different skin colors of different human races. The main purpose of *Tomizawa* is to provide improved face area extraction of an image irrespective of a person's race. Therefore, *Tomizawa* first identifies the color of the person's skin and then, based on the color of the person's skin, the person's face is better extracted from the original image. *Tomizawa* does disclose that it is possible to correct the face color image data, but only suggests that it be suitably encoded or quantized to improve the image quality (column 4, lines 38-40). To extract the face color image data from the original image data, *Tomizawa* discloses two distinct embodiments.

One embodiment involves a primary discriminating portion 2 which extracts pixels that fall within a predetermined range of skin colors. These extracted pixels are outputted to a pixel counting portion 3 which counts the number of pixels extracted by the primary discriminating portion 2. The counted value is outputted to a control portion 5, which decides (discriminates) to which group (thick or thin) the extracted person's skin color belongs according to the counted pixel value. Based on this discrimination, a range of the color component values are derived and are used for further area extraction. In other words, the primary discriminating portion extracts pixels from an image that fall within a range of possible skin colors, the counting portion counts the number of pixels thereby determining the person's skin color, and the person's face (skin color area) is extracted from the original image data based on the determined skin color.

Another embodiment uses a histogram preparing portion 7, a noise eliminating portion 8, and a peak detecting portion 9 in place of the primary discriminating portion 2 and the pixel counting portion 3 of the first embodiment. The

peak discriminating portion 9 examines whether a histogram has a peak in a specified area, and outputs the examination result to a control portion 5. According to the examination result, the control portion 5 correlates the histogram with a color area of a person to determine if the person has thin-skin color or thick-skin color. The control portion 5 outputs a decided color-area mode and threshold to a face-area extracting portion 4. The face-area extracting portion 4 extracts a face (skin color) area from a hue signal of an image read from a frame memory according to the color-area mode and the threshold received from the control portion 5. In other words, the person's skin color is determined by the location of the peak in the histogram, and based on this determined skin color the person's face area is extracted from the original data.

Rejections under 35 U.S.C. § 102(b)

Claims 1, 10, 12, 21, 22 and 24 are rejected as being anticipated by *Tomizawa*.

Claims 1, 10 and 12 have been amended to more clearly define the classification and correction of the extracted imaged data. Claims 1, 10 and 12 are generally directed to image processing aspects of the claimed invention including, among other features, extraction of skin areas from image data, deciding among a plurality of different classifications to which classification each of the extracted skin areas belongs, and correction of the image data of each of the skin areas according to a correction method provided beforehand that corrects each one of the plurality of different classified skin areas differently according to which of the plurality of different classifications the skin area belongs.

As noted above, *Tomozawa* discloses that, irrespective of any classification that may be appropriate, it is "preferred to extract a face area from an image and suitably encode and quantize the extracted face area to improve the image quality." See column 4, lines 38-40. *Tomizawa* makes no disclosure of correction of the image data of each of the skin areas according to a correction method provided beforehand that corrects each of the plurality of different classified skin areas differently. For at least this reason, *Tomizawa* does not anticipate at least the claimed feature directed to differently correcting the different classifications of data. For at least this reason, Claims 1, 10 and 12 are allowable.

Claim 21 has also been amended to better define the feature related to image correction. Claim 21 now defines an image corrector which differently corrects image data of each of a plurality of different classifications of the skin areas classified in the same skin type according to which of the plurality of different classification the skin area belongs. As noted above, *Tomizawa* only discloses correcting the face color image data the same way irrespective of any different classifications. For at least this reason, Claim 21 is allowable.

Another aspect of the claimed invention that differentiates over *Tomizawa* is generally directed to a method including, among other features, extracting skin candidate areas from image data of an entire area by use of a first method, and extracting skin areas from the image data in the extracted skin candidate areas by use of a second method that is different from the first method. In other words, candidate skin areas are first extracted from the entire image data with a first method, and then skin areas are extracted from the previously extracted skin candidate areas with a second method. These features are presently defined by Claim 24.

Tomizawa does not disclose this feature, and only discloses extracting skin areas from the original image data. The Official Action incorrectly proposes that column 7, lines 16-38 of *Tomizawa* disclose extracting skin candidates areas from image data of an entire area with a first method, and that column 7, lines 58 through column 8, line 23 disclose extracting skin areas from the image data in the extracted skin candidate areas by use of a second method different from the first method. With respect to these cited portions, *Tomizawa* discloses extracting a face area from the original image. For example, column 7, lines 58-62 discloses extracting a face area from the original image without processing and extracting a face area from the original image according to the threshold from the input color-space discriminating portion 11. Further, in column 7, lines 42-45 (emphasis added) it is stated that “[t]he control portion 5 controls the face-area extracting portion 4 to extract a face area from the original image...” If *Tomizawa* only discloses extracting a face area from the original image, it does not disclose extracting skin candidate areas from image data and extracting skin areas from the extracted skin candidate areas, as defined by Claim 24. Should this rejection be maintained, it is respectfully requested that the next Official Action specifically point out and explain where *Tomizawa* discloses extracting skin areas from other than the original image data, or that this rejection be withdrawn. For at least these reasons, Claim 24 is allowable.

Claim 22 depends from Claim 1 and should be allowable for at least the same reasons.

Rejections under 35 U.S.C. § 103(a)

Claims 2, 8-10, 12, 13, 19 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tomizawa* in view of *Nakamura*.

It should be noted that the Official Action seems to have inadvertently identified Claims 10 and 12 as being rejected under 35 U.S.C. § 103(a), because Claims 10 and 12 are rejected under 35 U.S.C. § 102(b), no remarks are made with respect to the 35 U.S.C. § 103(a) rejection, and a prima face case of obviousness has not been established. Should this assumption be incorrect it is requested that the next Official Action more clearly explain the basis for the rejection of Claims 10 and 12 under 35 U.S.C. § 103(a).

Claims 2 and 13 are allowable at least because they are directed to determination of a characteristic of skin according to average, dispersion and center of gravity obtained from a histogram of image data of each of the skin areas. The Official Action concedes that *Tomizawa* does not disclose this feature and relies on column 15, line 56 through column 16, line 17 and column 28, lines 19-68 of *Nakamura* to remedy this deficiency. However, the cited portions of *Nakamura* do not disclose the subject matter for which they are relied upon. Referring to the cited portions of *Nakamura*, column 15, lines 47-49, states that "[i]n step 168, it is judged if the decision of whether or not all of the extracted regions belong to a face is completed." Further, column 28, lines 19-68, is directed to the unification of picture elements based on their degree of similarity. Nowhere in the portions of *Nakamura* identified in the Official Action is a determination of characteristics of the skin disclosed. For at least this reason Claims 2 and 13 are allowable.

Claims 8 and 19 are generally directed to extraction of skin areas from input image data, and conversion of a color specification system of the image data for each of the skin areas and extraction of the skin areas from skin candidate areas based on the image data in the color specification system. The Official Action proposes that this feature is disclosed in column 20-23 of *Nakamura*. Applicant

submits that these features are not disclosed by these portions of *Nakamura*.

Should this rejection be maintained, it is requested that the Official Action more specifically point out where *Nakamura* discloses this feature, or that the rejection be withdrawn.

Claims 8, 9, 19 and 20 depend from Claims 1, 10 and 12, respectively. As relied on in the Official Action, *Nakamura* does not remedy the deficiencies of the rejections of Claims 1, 10 and 12, therefore Claims 8, 9, 19 and 20 are allowable for at least the same reasons.

Claims 7 and 18 are rejected as being unpatentable over *Nakamura* in view of *Funda*. As relied of in the Official Action, *Funda* does not remedy the deficiencies of the rejections of Claims 1 and 12. Because Claims 7 and 18 depend from Claims 1 and 12, respectively, Claims 7 and 18 should be allowable for at least the same reasons.

Conclusion

For the reasons stated above, it is requested that all the rejections and objections be withdrawn and that this application be allowed in a timely manner.

Should any questions in connection with this application, or should the Examiner feel that a teleconference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersign respectfully request that he be contacted at the number indicated below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

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By: Kevin B. McBoyle (Rn. 53,297)
for William C. Rowland
Registration No. 30,888

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-66